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ABSTRACT

This review draws on research literature concerning preschool programs for at-risk children in the United States. Studies cited are those that meet relatively high standards of research quality. The term "at-risk" refers to children who are considered liable to develop behavioral problems and experience school failure because of their low socioeconomic or minority status or the limited education of their parents. The four questions addressed in the report concern trends in preschool enrollment, common characteristics of exemplary preschool programs for at-risk children, effects of such programs, and evidence on the durability of those effects and the reasons why they may fade. Elements common to exemplary preschool programs include curriculum and teaching practices based on principles of children's learning; sustained parental involvement; and periodic monitoring and evaluation. The research shows that preschool education programs for at-risk children have effects in six major areas: cognitive abilities; classroom learning behaviors; socioemotional development; family; long-term school success; and school and societal costs. Evidence on program effects indicates that, for seven possible reasons, cognitive gains of participating children diminish between preschool and the end of grade five, and under some circumstances disappear entirely. A total of 58 references are cited. (RH)

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PRESCHOOL PROGRAMS FOR AT-RISK CHILDREN: A REVIEW OF RECENT LITERATURE

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I. INTRODUCTION AND BACKGROUND[1]

This report draws on the research literature concerning preschool programs for at-risk children in the United States. Studies cited here are those that meet relatively high standards of research quality; for example, the evaluations used control groups that were either randomly assigned or carefully studied for differences from the experimental group. This report addresses four questions:

1. What are current trends in preschool enrollment, including that of at-risk children?

2. What are the elements common to exemplary preschool programs for at-risk children?

3. What are the effects of preschool programs on at-risk children?

4. What is the evidence concerning the durability of these effects?

As in the literature, the term "at-risk" in this report refers to children who are considered at risk for behavioral problems and school failure because of their low socioeconomic or minority status or the limited education of their parents. The term "preschool" refers to any program organized to provide educational experiences for children between infancy and the mandatory school age. A preschool program may be organized as part of an elementary school or as a separate public or private school, for at least two hours a day from two to five days a week (Pendleton, 1986, pp. 124-125). These programs often serve the purpose of child care for working parents, particularly when they operate for the full day. However, child care in home settings is not generally included in the definition of preschool. In the literature, the terms "preschool," "prekindergarten," and "nursery" are used synonymously; the term "preprimary" refers to both prekindergarten and kindergarten schooling.

Participation in preschool education in the United States has grown dramatically since the 1970s (Table 1). The proportion of three- and four-year-olds enrolled in preschool programs has increased from 13 percent and 28 percent respectively in 1970 to 29 percent and 49 percent respectively in 1986. This trend is expected to continue into the next decade (Digest of Education Statistics, 1988, Table 38, p. 55; Current Population Survey, 1986).

Several factors have fueled the increase in preschool enrollment. These include:

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[1] Although this work was supported by the U.S. Department of Education, the opinions expressed are those of the authors and do not represent or necessarily reflect the position or policies of the Department.

- o **The increasing participation of mothers in the labor force.** The proportion of married women in the labor force with children less than six years of age rose from 30 percent in 1970 to 53.8 percent in 1986 (Table 2). The percentage of married women in the labor force with children between ages three and five rose from 42 percent in 1975 to 61 percent in 1987 (Table 625, Statistical Abstract of the United States, 1988).

- o **The increase in the availability of preschool programs.** While private preschools have not been identified and surveyed on a nationwide basis recently, preschool initiatives in the public sector have been the subject of recent surveys. Prior to 1980, eight states had passed legislation and/or provided funding for prekindergarten (excluding those states supporting Head Start). By 1984, seven additional states had joined the ranks. Between 1985 and 1987, three states with existing programs enacted new ones, and 11 states initiated preschool programs, raising the number of states with some form of early childhood legislation to 26 (Marx & Seligson, 1988). New programs have also been initiated at the local level; in a recent survey of school districts, one-third of the preschool programs for which data were reported were new since 1980 (Mitchell, 1988b).

Several trends are evident in preschool enrollment by age, race, mother's working status, education of household head, and family income (Tables 2, 3, 4, and 5). These are:

- o **Preschool enrollment rates for three- and four-year-olds are not significantly different for blacks and whites** (43 percent vs. 39 percent). **However, blacks are about twice as likely as whites to enroll in public programs.** Among the black children aged three and four enrolled in preschool in 1985, 64 percent were enrolled in public preschools, while the comparable figure for whites was 30 percent. The proportion is approximately one-half vs. one-fourth for three-year-olds, and two-thirds vs. one-third for four-year-olds (Bruno, 1988; Pendleton, 1986).

- o **Preschool enrollment increases with increasing family income.** Increasing income also increases the likelihood of enrollment in private preschools (Pendleton, 1986).

- o **Preschool enrollment increases with increasing education of the household head.** In 1986, the preschool enrollment rate for three- and four-year-old children of high school dropouts was 25 percent, while the enrollment rate for children of college graduates was 56 percent (Current Population Survey, 1986).

Although the number of at-risk children is growing, enrollment trends show the following):

- The enrollment of preschool children with low socioeconomic status (SES) is not increasing as rapidly as the number with high SES (Pendleton, 1986).

- Hispanic three-year-olds are less likely to be enrolled (17 percent) than black or white three-year-olds (26 and 30 percent respectively). Thirty-nine percent of Hispanic four-year-olds are enrolled in preschool, compared with 49 percent of all four-year-olds (Current Population Survey, 1986).

- The growth in the enrollment rate of three- and four-year-olds in preschool programs, from 11 percent in 1965 to 39 percent in 1986, was primarily in the private sector (Pendleton, 1986).

- About 40 percent of the children who are eligible due to family poverty enroll in Head Start programs at some time from age three to five.

About two-thirds of state preschool programs require targeting of services to children who either come from poor families or lack skills in English language or school readiness (Marx & Seligson, 1988).

II. ELEMENTS COMMON TO EXEMPLARY PRESCHOOL PROGRAMS

Exemplary preschool programs for at-risk children share the following characteristics, according to the literature:

- Curriculum and teaching practices based on principles of children's learning

- Sustained parental involvement

- Periodic monitoring and evaluation.

Most research knowledge about the beneficial effects of preschool is based on experimental or quasi-experimental designs carried out in programs where services had a theoretical foundation and program implementation was carefully monitored. Therefore, we can say that programs having the characteristics that were common to these well-studied programs do produce benefits for children. (Later sections of this review discuss the nature and persistence of the effects.) We cannot distinguish which specific characteristics, if any, are indispensable to program success.

Curriculum and Teaching Practices Based on Principles of Children's Learning

The specific instructional content of the curriculum or the intensity of its treatment are not as critical to program effectiveness as the quality of its implementation (New York State Early Childhood Education Commission,

1986; Berrueta-Clement, Schweinhart, Barnett, Epstein, & Weikart, 1984). In studies that have compared the effects of different curricular models (discussed below), no clear consensus is yet apparent from study to study. Weikart (1981) concludes from a set of comparative analyses that preschools that adhere to any one of several conceptually sound models can produce positive effects, while preschools in which implementation is not closely controlled may provide lower quality services, leading to the less significant results observed for their graduates.

The generalization that seems to be supported by evaluations with high-quality designs is that **exemplary programs base their curriculum models on principles of children's emotional and cognitive development** (Pierson et al., 1984; Schweinhart & Koshel, 1986; Elkind, 1986; Collins, 1984; Slaughter, 1982; Zigler & Berman, 1983). The National Association for the Education of Young Children (NAEYC, 1986) cites theory and research supporting curriculum and teaching practices that are congruent with children's development. According to these sources, program designers and teaching staff in exemplary programs pay attention to:

- **Appropriate sequencing of activities and a level of difficulty that matches the developmental needs of the children** (Palmer, 1983; Biber, 1984; Berrueta-Clement et al., 1984)

- **Issues of individuality and potential differential impact based on gender, disability, culture, and native language** (Berrueta-Clement et al., 1984, p. 175)

- **Comprehensiveness in terms of activities** that address the social, emotional, physical, and cognitive aspects of a child's development (Mitchell & Seligson, 1986, p. 3; Schweinhart, 1983)

- **"Structuring the space and materials** to afford each child an opportunity to develop a sense of effectiveness, to explore concepts, to develop mastery and social skills essential for competencies in school" (Pierson et al., 1984, p. 9; also see Miller & Bizzell, 1983)

- **Limiting group size to 20 children and maintaining an adult-child ratio of at least 1:10** (Ruopp, Travers, Glantz, & Coelen, 1979; Shure & Spivack, 1982; Berrueta-Clement et al., 1984; Lazar & Darlington, 1982; Schweinhart & Koshel, 1986/1987).

Teacher behaviors in preschools are not easily disentangled from curriculum, especially in programs characterized by high levels of interaction between children and adults. However, some research has addressed the issues of teacher behavior and qualifications. **Teacher behaviors associated with positive outcomes in the cognitive and social domains include the following:**

- **Rapid and appropriate response to children's needs, desires, and messages** (NAEYC, 1986)

- Provision of many opportunities for children to communicate (NAEYC, 1986; Genishi, 1987) and use of an "elaborative" style that gives children much information and encourages them to comment in return (Smothergill, Olson, & Moore)

- Display of warmth and respect towards children along with minimal use of criticism and negative comments (Phyfe-Perkins, 1981; NAEYC, 1986; Lay-Dopyera & Dopyera, 1987) .

How do teachers develop the skills needed in preschool education? In a national study that investigated the relationship between children's test scores and numerous variables in teacher preparation and experience, the only variable showing a significant association with the children's outcomes was the extent to which caregivers had specialized education in child-related fields (Ruopp et al., 1979).

Research studies provide only tentative evidence on the differential effects of different program curricula and teaching strategies. Generalizing across comparative studies, we can examine the short-and long-term effects of curricula that include "traditional" nursery school (with a relatively high proportion of child-initiated activities), Montessori programs, and several types of "didactic" curricula that stress teacher-led, structured drill:

- **Immediately after preschool, the children in teacher-directed or didactic programs tend to demonstrate superior IQ scores and measured achievement in reading and math** (Karnes, Schwedel, & Williams, 1983; McKey et al., 1985).

- **Over the long term, results are mixed.** Karnes et al. followed students to age 19 and found that students in traditional or Montessori programs tended to do best on several measures of school success, including higher graduation rates and lower rates of special education placement or retention in grade. (None of the groups had higher achievement scores than any other program group beyond grade one, however.) Miller and Bizzell did find differences in achievement in grades six and eight, with the differences favoring nondidactic programs (1983). Weikart et al. (1978) did not find significant differences among curricula at grade five or eight on any measures, including grade retention or special education placement.

- **Findings on long-term effectiveness may vary with the sex of the child.** Although Miller and Bizzell (1983) reported an overall superiority of nondidactic instruction, including Montessori instruction, as measured by results in grades six and eight, this finding is due to the significantly higher test scores achieved by boys. The results for girls were less marked but were in the opposite direction, with those who had received didactic instruction scoring higher.

- One study reported differential effects on delinquency. Schweinhart, Weikart, and Larner (1986), who compared the impact of three different types of programs, found (based on self-reports at age 15) that participants from a teacher-directed program had a higher incidence of delinquency than participants from two other programs where learning was more child-initiated.

Program Examples

Some curriculum characteristics described in this section can be illustrated with vignettes from particular programs.

- Comprehensiveness of focus is illustrated by the Ysleta Prekindergarten Program in El Paso, Texas. Responding to a legislative mandate for half-day preschool for four-year-olds who either live in poverty or have limited English proficiency, the Ysleta school district set aside an entire school for prekindergarten classes. The program components are language development, motor skills development, expression of creativity (through art, music, and drama), socio-emotional development, and the use of the five senses to observe the environment.

- Mitchell (1988a) describes a child-centered, experiential program that integrates art and science activities. In the art room one day, the art teacher read a story about a mountain, rain, and the washing away of soil; the children then manipulated samples of clay that are dry, wet, and hardened, putting the different kinds of clay into water, trying to break the hard clay, and rolling and molding the wet clay.

- In a teacher-directed program studied by Karnes et al. (1983), groups of five children remained with one teacher for three structured periods covering math concepts, language arts and reading readiness, and science-social studies. The lessons often used a game format, structured to require particular verbal responses from children. Teachers praised appropriate responses and immediately corrected wrong ones, often through repetition of model sentences.

Sustained Parental Involvement

Most exemplary preschool programs aim "to assist parents to explore various ways to work with their children" and keep them meaningfully involved in the program activities (Burkett, 1982, p. 42; Mitchell & Seligson, 1986). The programs pursue this goal in one or more of the following ways:

- Organizing home visits and other outreach activities by program staff in order to help parents teach their own children

- Arranging parent-teacher conferences

- Conducting classes on child development
- Providing weekend sessions for all parents
- Videotaping parent-child interaction and providing feedback
- Circulating toys, library books and news articles
- Inviting participation in parent advisory committees
- Involving parents as volunteer or paid staff assistants.

Our literature search identified one study which examined the effects of the frequency of home visits on the achievement of preschool students. The results of the two-year study revealed that preschool children whose homes were visited each week did not score significantly higher on standardized tests of verbal achievement than those children whose homes were visited every two weeks. However, children whose homes were visited showed significantly higher scores than children whose homes were not (Burkett, 1982). In general, though, the numerous combinations of activities used by the various exemplary programs reviewed suggest that program activities and components are so interrelated that it is not possible to attribute specific program outcomes to specific activities or techniques.

Studies confirm that sustained parental involvement in preschool programs is associated with the following outcomes:

- **Better academic performance in school** as measured by standardized achievement tests (Collins 1984; Berrueta-Clement et al., 1984; Lazar & Darlington, 1982; Slaughter, 1982; Zigler & Berman, 1983). Specifically, Irvine (1982) found that the extent of parental involvement was associated with children's scores on each of three measures of cognitive development--language, reading, and math. The cognitive gains of preschool children whose parents were actively involved exceeded the gains of those whose parents were not by .24 standard deviation in research by Collins (1984). Parental involvement is also associated with regular school attendance, which in turn is thought to affect school achievement and school graduation.

- **Decline in classroom behavioral problems** as measured by teacher ratings (Klein & Durfee 1979; Lewis et al., 1984; Berrueta-Clement et al., 1984). The program mothers' greater display of affection, praise, appropriate control, and encouragement of children's verbalization builds a strong bond and attachment between parent and child (Johnson & Walker, 1987). If this bond is strong, the child is less likely to develop behavioral problems.

Findings on the effects of parental involvement must be viewed with caution because it is unclear whether parental involvement contributes to

outcomes or whether parental concern over children's cognitive and emotional development promotes involvement in the first place (McKey, 1985, p. 16).

Program Examples

- The Beethoven Project, which began in 1987 on a pilot basis, serves families in the Robert Taylor housing project (the nation's largest and poorest) whose children will attend Beethoven Elementary School. A small team of "family advocates" who live in or near the housing project works individually with the mothers and offers a center with play areas, cooking and lounge areas, and medical examination rooms. Services include advice about child care, nutrition, and development. The Beethoven Project also provides schooling for toddlers and will enroll the participating children in Head Start.

- Every school district in Missouri now participates in the New Parents as Teachers Project, which serves interested parents from the third trimester of pregnancy until the child reaches age three. Services include four to eight visits to the home each year by parent educators trained in child development, regular group discussion meetings with other parents, and periodic monitoring and screening of children. An evaluation of a pilot program showed that participating children surpassed nonparticipants in intellectual functioning, language skills, and social and adaptive behavior.

- Minnesota administers the Early Childhood and Family Education project, in which approximately 200 centers provide parent-child programs for families in all socioeconomic groups. Home visits are also part of this program.

Periodic Monitoring and Evaluation

Exemplary programs periodically monitor children's problems, measure progress, and conduct program evaluations. **Diagnostic monitoring of children can detect health and developmental problems early** (Mitchell & Seligson, 1986; Pierson et al., 1983/1984; Schweinhart & Koshel, 1986). This improves the chances of remediation.

Because this review relies on data from programs that had unusually high-quality evaluations, there is a danger of circular reasoning in drawing the conclusion that program evaluation contributes to positive program outcomes. However, logic suggests that a program which conducts evaluations and uses the findings for program improvement will become increasingly effective over time. Researchers have argued that **year-end evaluations of program effectiveness, including measures of outcomes and process, contribute to program improvement** (Collins, 1984; Slaughter, 1982; Johnson, 1983; Zigler & Berman, 1983).

III. THE EFFECTS OF PRESCHOOL EDUCATION

This section addresses the question:

- What are the main effects of preschool education on at-risk children?

Much of the pertinent research evidence comes from the long-term findings of a few studies/programs: Consortium for Longitudinal Studies, Perry Preschool Project, New York Experimental Pre-Kindergarten Program, Harlem Head Start Program, Brookline Early Education Project, Mother-Child-Home Program, Milwaukee Project, North Carolina Abecedarian Project, Philadelphia public school nursery program, and Cincinnati ESEA Title I All-day Pre-K Program. Table 6 summarizes key features of these studies, which compel special mention because of the quality of their longitudinal evidence on preschool program effects.

Research results show that preschool education programs for at-risk children have effects in the following six major areas:

- Cognitive abilities
- Classroom learning behaviors
- Socio-emotional development
- Family
- Long-term school success
- School and societal costs.

Researchers have advanced tentative models for causal relationships among these outcomes, attempting to account for the long-term persistence of positive effects found in some studies of preschool education.

- In these models, the higher cognitive abilities found at age five or six among preschool graduates contribute to longer-term commitment to schooling and a decreased likelihood of retention in grade or assignment to special education (Schweinhart & Weikart, 1980; Royce, Darlington, & Murray, 1983).
- Preschool also contributes directly to the commitment to schooling or pride in achievement that students show in the middle and upper grades. This is important because these variables are in turn related to the eventual completion of high school, lower rates of delinquency, and higher rates of employment (Schweinhart & Weikart, 1980; Royce et al., 1983).

- Schweinhart and Weikart argue for the importance of motivation as an outcome of preschool, theorizing that "the direct effects of preschool were motivational as well as cognitive. We assumed that commitment to schooling began as a response to school success. The data suggest a slight reformulation: commitment began as a response to a cognitively stimulating preschool environment" (1980, p. 66).

- Similarly, Gray et al. cite their findings that preschool graduates had high test scores in the early grades and higher rates of success in school over longer periods. They argue for the plausibility of a model whereby, "If changes were made in the child's and possibly the parents' motivations, and if the child was perceived more favorably by the teachers, one has the makings of a benign spiral that could continue over the years" (1983, pp. 64-65).

Although these models are somewhat speculative and incomplete, support for their main points emerges from the findings presented below.

Effects on Cognitive Abilities

Studies typically define cognitive abilities in terms of IQ scores and reading, math, and language competencies. Research findings reveal a substantial gain in participants' IQ scores (as measured by Stanford-Binet and Wechsler Intelligence Scale for Children) immediately after the preschool experience. This gain in IQ scores is not noticeable after two to four years, however (Schweinhart & Weikart, 1980; Berrueta-Clement et al., 1984; McKey, 1985; Lazar & Darlington, 1982; Miller & Bizzell, 1983; Ramey & Haskins, 1981; Neiman & Gastright, 1984; Gray et al., 1983; Johnson & Walker, 1987; Ramey & Campbell, 1984; Palmer 1983; Weissberg et al., 1981; Beller, 1983; Seitz et al., 1983).

Former preschool participants are also reported to outperform controls on reading, math, and language competencies. These effects are found to last between four and ten years after the preschool experience.

Effects on Classroom Learning Behaviors

Classroom learning behaviors are typically measured by teacher ratings and/or classroom observations by independent observers. The literature reviewed tends to converge on the conclusion that children with preschool experience demonstrate better classroom learning behaviors. That is, they show:

- Greater task persistence
- Greater academic motivation
- Greater attentiveness in class

- Greater ability to work independently on a task
- Greater ability to follow directions
- Greater resistance to distractions
- Greater ability to cooperate with peers
- Greater success in completing assigned work
- Better use of time during mastery learning and social activities.

These differences in classroom learning behaviors are evident from elementary through middle school and are found to be associated with increased scholastic achievement of preschool children (Berrueta-Clement et al., 1984; Schweinhart & Weikart, 1980; Pierson et al., 1984; Johnson & Walker, 1987; Beller, 1983).

Effects on Socio-emotional Development

Program children outperform controls on measures of their social and emotional development. Aspects of social development affected favorably by preschool intervention are the following:

- Cooperativeness rather than hostility (Johnson & Walker, 1987; Beller, 1983)
- Sociability and assertiveness with peers (McKey, 1985; Pierson et al., 1984)
- Less deviant behavior. Among program children in high school there were half as many instances of deviant behavior as indicated by detention after school, absences and truancy, lying and cheating, resistance to teachers, or manipulation of adults (Schweinhart & Weikart, 1980; Shure & Spivack, 1982).
- Less delinquent behavior as indicated by fewer arrests (31 percent vs. 51 percent), fewer cases taken to juvenile court, and fewer months on probation (12 vs. 33 months) (Berrueta-Clement et al., 1984). Rich (1987) also reported lower rates of delinquency among 14- through 16-year-old teenagers with preschool experience (6 percent vs. 22 percent).

On a more negative note, some studies have also found that the greater assertiveness of children who have attended preschool may be accompanied by aggressiveness. Beller found greater expressions of aggression among the first graders studied who had attended two years of preschool (1983).

Aspects of emotional development affected favorably by preschool intervention were:

- Self-esteem and self-confidence (McKey, 1985; Rich, 1987; Beller, 1983)

- Motivation to learn and achieve (McKey 1985; Berrueta-Clement et al., 1984; Beller, 1983)

- Self-expectations. Program children aspire to white-collar jobs and a college education, and they rate themselves as better in school performance than controls (Lazar & Darlington, 1982; Berrueta-Clement et al., 1984; Beller, 1983).

- Maturity of moral judgment (Beller, 1983).

Effects on Family

The preschool experience has significant impact on parents' expectations for their children. Parents of program children are more satisfied with their child's performance, hold higher educational and occupational expectations, and exert pressure to achieve (Berrueta-Clement et al., 1984; Lazar & Darlington, 1982; Ramey & Haskins, 1984; Pierson et al., 1984). Some studies have linked parental expectations with regular school attendance, which in turn is believed to improve academic achievement (Collins, 1984).

The preschool experience has little impact on parental attitude towards education in general (McKey, 1985). This suggests that a favorable parental attitude may have drawn parents to preschool education in the first place.

There is evidence to suggest that the preschool experience strengthens the parent-child relationship. The Carolina Abecedarian Project study (Ramey & Haskins, 1981) which observed mothers and children in a laboratory setting, showed that Experimental mothers played with their children three times more often than Control mothers. Also, Experimental children asked their mothers to watch or join an activity more often than the Control children. The authors believe that preschool improves the mother-child relationship for two reasons: First, "with the child receiving day care, low-income mothers may complete their education, get a job, either of which could reduce financial strain on the family in the long run. Reduced financial strain may improve the quality of the mother's contacts with the child by reducing the mother's anxiety over other problems. Second, if preschool produced bright and responsive children, then such children may make successful demands on their parents for attention and involvement" (p. 100).

Johnson and Walker's (1987) study of the Houston Parent-Child Development Center revealed that the preschool experience "effectively reduced the frequency of behavior problems for these children five to eight years after the programs' completion" (p. 375). They speculate that the trust and attachment that develop with the parents are associated with a

decline in behavioral problems and promote similar trusting relationships with other people.

Effects on Long-term School Success

Children with preschool experience outperform controls on measures of long-term school success. Compared with controls, program children more readily develop the competencies required to adapt to the school social and academic environment and its behavioral demands (McKey, 1985; Schweinhart & Weikart, 1980; Berrueta-Clement et al., 1984; Lazar & Darlington, 1982; Ramey & Haskins, 1981; Neiman & Gastright, 1981; Palmer, 1983; Beller, 1983; Gray et al., 1983).

- **Program children are half as likely to be assigned to special education classes, less likely to be retained in grade, and less likely to drop out of school.** (See Table 7.) The graduation rate of program children is 20 percent higher than that of controls.

Long-term studies of one program, the Perry Preschool Project, have shown more lasting effects on school performance than have studies of other programs. These results and the findings concerning day care and family services in an experimental program in Syracuse, New York (Rich, 1987) suggest the potential contribution of preschool:

- Preschool education can contribute to improvements in academic performance in the elementary, middle, and secondary schools (Berrueta-Clement et al., 1984, p. 24; Rich, 1987; Gray et al., 1983). **On average, program children had better grade-point averages and had fewer failing grades in elementary and secondary school.**

- **The long-term success in school enjoyed by program children may be associated with greater commitment to schooling.** Program children at age 15 showed greater academic motivation, placed greater value on education, had college aspirations, were more willing to discuss school with their parents, and spent more time on homework than controls (Schweinhart & Weikart, 1980; Berrueta-Clement et al., 1984; Rich, 1987; Beller, 1983; Gray et al., 1983).

Effect on School and Societal Costs

Evidence on the economic benefits of preschool to society and in particular to the school system comes from the Perry Preschool Project Study (Berrueta-Clement et al., 1984). According to the study, **one of the beneficial effects at age 19 of having attended preschool is economic success, i.e., employment, earnings, and economic independence.** Compared with 19-year-olds with no preschool, those who attended preschool were more likely to be employed (59 percent vs. 32 percent), had experienced fewer months of unemployment since graduation, and had higher median annual earnings (Berrueta-Clement, et al., p. 88). The study also assigns economic

value to a mother's released time when the child is attending preschool. This analysis demonstrates the more general benefits arising from individual success: "The primary economic benefit to society from improved economic independence comes in reduced costs ($16,415 per person for social service programs" (p. 56). The study implies that the preschool experience can break the cycle of poverty for at-risk children.

A second economic benefit is the potential savings (of $2,286 per person) **in the criminal justice system.** This savings stems from the effect of preschool education on delinquent behavior. The Perry Preschool Study (Berrueta-Clement et al., 1984) reported fewer arrests (31 percent for program group vs. 51 percent for the comparison group), fewer months on probation (12 vs. 33 months), fewer fines (3 percent vs. 14 percent), and fewer cases sent to juvenile court.

A third source of economic benefit is related to school expenditures on grade retention and special education classes. Besides the Perry Preschool study, six other studies have demonstrated that there are fewer incidents of grade retention and special education assignment among children with preschool experience (see Table 7).

IV. DURABILITY OF IMPACT AND REASONS FOR WEARING OFF

Evidence on the Durability of Impact

Many of the short-term benefits of preschool disappear over time, although there is research evidence for the persistence of other beneficial effects (such as a reduced likelihood of grade retention or placement in special education). The gains that are most prone to disappearance are the **gains in IQ scores evident immediately after the preschool experience.** According to the Perry Preschool Project Study (Berrueta-Clement et al., 1984), during the preschool years there was a 12 point difference in IQ scores between the program and control children. A year after preschool, differences in the IQ scores dropped by five points because of an increase in the IQ scores of the controls. By the end of grade three, the difference in IQ scores had disappeared. There has been debate over the appropriateness of IQ tests as outcome measures for preschool, given the view that IQ is a relatively stable property of the individual child and the fact that IQ tests are designed to be relatively impervious to teaching effects. On the other hand, because short-term gains in IQ have often been cited as benefits of preschool, measurement of the long-term trends seems appropriate.

Different types of cognitive gains (IQ, reading achievement, and math achievement) show different degrees of durability through the elementary grades, according to the Consortium for Longitudinal Studies (Lazar & Darlington, 1982), the Perry Preschool Project Study (Schweinhart & Weikart, 1980; Berrueta-Clement et al., 1984), the Head Start Synthesis Report (McKey, 1985), the North Carolina Abecedarian Project (Ramey & Haskins,

1981), and the Cincinnati ESEA Title I Study (Nieman & Gastright, 1981). Between preschool and the end of grade two, the program group maintains its gains in reading, math, and IQ. By grades four and five, the gain is maintained more in math than in reading, and the IQ gain disappears.

Research is divided on the durability of impact on reading and math achievement gains beyond grade five. Lazar and Darlington (1982) and Miller and Bizzell (1983) maintain that by grade six the gains in math and reading begin to diminish, and by grade eight the difference between program and controls on cognitive ability is virtually negligible. On the other hand, the Perry Preschool Project Study (Schweinhart & Weikart, 1980; Berrueta-Clement et al., 1984) reveals that the reading, language, and math achievement of preschool participants is significantly better even at age fourteen.

The Harlem Head Start study (Palmer, 1983) shows a unique example of the "sleeper effect." Sleeper effect refers to the phenomenon where "treatment occurs at time I, no effects are found at time II but effects are found at time III" (p. 160). Researchers found that by the age of four years and eight months the effects of the preschool program on cognitive gains had begun to wear off. But in the later years of elementary school, differences in cognitive gains began to reappear. For example, by grade three the program children were four months ahead of the controls in reading. By grade six, they were six months ahead.

From these disparate findings, one essential point is clear. The cognitive gains of program children do seem to diminish between preschool and end of grade five, and under some circumstances they wear off completely. The question then is what causes the wearing off? This question is discussed below.

Reasons for Wearing Off

Researchers do not know why the effects of preschool often diminish or disappear over time. If there were a more definitive model to account for the long-term success observed by some researchers, then the same model might account for the weaker long-term results that are more commonly found. At this point, the following reasons discussed in the literature have at least some plausibility as explanations for a decline in cognitive gains after program children enter the public school, although experts could also debate the validity of each of these points:

- **The developmental challenges faced by children aged 8-10.** Caldwell (1987) claims that the period between ages 8 and 10 is an important time in the developmental cycle of a child in that major transitions occur in "analytical ability, understanding causality, use of conditional reasoning, and moral competence of a child" (p.13). Children in this age period tend to consolidate previous learning rather than engage in new learning breakthroughs. **Also, the school's expectations for students' academic performance** change. By this age teachers place demands on children not just

to learn to read (as in early childhood) but to read to learn. Behaviorally, greater expectations of conduct are imposed. Caldwell (1987) speculates "that the social and emotional ferment occurring around age 8-10 could disrupt previous cognitive and academic gains" (p. 10).

- **The quality of preschool pedagogy.** Instructional features of a program can have an impact on the persistence of the program's effects. According to Caldwell (1987), the set of studies which consistently showed positive impact featured a uniformly high-quality pedagogy that included a high adult-child ratio, strong emphasis on language development, extensive parental involvement, proper sequencing of learning activities, opportunities to choose from varied materials, gradual increase in independence, and reinforcement of positive behavior. The Head Start programs which reported greater diminution of cognitive gains used a diverse pedagogy of variable quality.

- **Change in the educational environment.** At-risk children move from preschool programs specifically designed for them, with small, individualized classes, to much larger and less personalized elementary school classrooms. The educational environment in elementary school classes does not support or stimulate the children as effectively as preschool classes (Ramey & Haskins, 1981; McKey, 1985).

- **The stereotyping of the academic capabilities of at-risk children.** Preschool programs hold high expectations for at-risk children but many teachers in elementary schools do not. According to Ramey and Haskins (1981), the process of schooling is very different for at-risk children than for other children attending elementary schools. Their study revealed that elementary school teachers relegated nearly all at-risk children to the lowest academic group, although such placement did not always correspond with the children's cognitive ability as measured by standardized achievement tests (p. 109).

- **Differences in social behavior of at-risk children and consequent alienation.** Bronfenbrenner (1967) has argued that minority and especially black children are characterized by behaviors such as aggressiveness which alienate their teachers and classmates. In at least one study, preschool children in the first grade showed more aggressiveness than comparison students (Beller, 1983). Garber and Heber (1977) have reported that participants from their preschool projects have encountered alienation in the public schools because of their confidence, skill, effective use of language, and ability to confront teachers--all of could make them difficult for some teachers and schools to cope with.

- **The short duration of preschool intervention efforts.** According to Gray et al. (1983) the preschool intervention effort is by itself too little and too soon terminated. The researchers

calculated that by age six the children in the study would at most have spent only two percent of their waking hours in the intervention program. The two percent, set against their whole life in a disadvantaged environment, makes the results appear miraculous. School achievement can last only if something is done to consolidate and move forward the gains made in the early period. School achievement in particular is dependent upon continued input of subject matter day after day, year after year.

- **Weak methodology.** According to Caldwell (1987) the decline in cognitive gains reported by research may be due to the methodological problems of nonrandom assignment to program and control groups and the use of unreliable instruments. Trends in the scholastic achievement of preschoolers and nonpreschoolers are difficult to summarize because no adequate measures of early childhood IQ data are available (p. 11). Therefore, the baseline for comparison of achievement scores established by existing measures is unreliable, and unreliable instruments may be recording declines or gains that are really not there.

REFERENCES

Beller, K. E. (1983). The Philadelphia study: The impact of preschool on intellectual and socio-emotional development. In Consortium for Longitudinal Studies, As the twig is bent...lasting effects of preschool programs (Chapter 11, pp. 333-376). Hillsdale, NJ: Lawrence Erlbaum Associates.

Berrueta-Clement, J. R., Schweinhart, L. J., Barnett, W. S., Epstein, A. S., & Weikart, D. P. (1984). Changed lives: The effects of the Perry Preschool Program on youths through age 19. (Monographs of the High/Scope Research Foundation, Number 8). Ypsilanti, MI: High/Scope Press.

Biber, B. (1984). Early education and psychological development. New Haven, CT: Yale University Press.

Bronfenbrenner, U. (1967). The psychological cost of quality and equality in education. Child Development, 38, 909-925.

Bruno, R. R. (1988). School enrollment--social and economic characteristics of students: October 1985 and 1984. U.S. Bureau of the Census, Current Population Reports. Washington, DC: Government Printing Office.

Burkett, C. W. (1982). Effects of frequency of home visits on achievement of preschool students in a home-based early childhood education program. Journal of Educational Research, 76, 41-44.

Caldwell, B. M. (1987). Staying ahead: The challenge of the third grade slump. Principal, 10-14.

Collins, R. C. (1984). Head Start: A review of research with implications for practice in early childhood education. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, April 23-27.

Elkind, D. (1986, May). In defense of early childhood education. Principal, 6-9.

Garber, H., & Heber, F. R. (1977). The Milwaukee Project: Indicators of the effectiveness of early intervention in preventing mental retardation: Care and intervention. In. P. Mittler (Ed.), Research to practice in mental retardation (Vol I). Baltimore, MD: University Park Press.

Genishi, C. (1987). Acquiring oral language and communicative competence. In C. Seefeldt (Ed.), The early childhood curriculum: A review of current research. New York City: Teachers College, Columbia University.

Gray, S. W., Ramsey, B. K., & Klaus, R. A. (1983). The early training project 1962-1980. In Consortium for Longitudinal Studies, As the twig is bent....lasting effects of preschool programs (Chapter 2, pp. 33-69). Hillsdale, NJ: Lawrence Erlbaum Associates.

Irvine, D. J. (1982). Evaluation of the New York State Experimental PreKindergarten Program. Paper presented at the annual meeting of the American Educational Research Association, New York City. ED 219 123.

Johnson, D. L. (1975). The development of a program for parent-child education among Mexican-Americans in Texas. In B. Z. Friedlander et al. (Eds.), Exceptional infant (Vol.3). New York City: Brunner/Mazel.

Johnson, D. L., & Walker, T. (1987). Primary prevention of behavior problems in Mexican-American children. American Journal of Community Psychology, 15(4), 375-385.

Karnes, M. B., Shwedel, A. M., & Williams, M. B. (1983). A comparison of five approaches for educating young children from low-income homes. In Consortium for Longitudinal Studies, As the twig is bent....lasting effects of preschool programs (Chapter 5, pp. 133-169). Hillsdale, NJ: Lawrence Erlbaum Associates.

Klein, R. P., & Durfee, J. T. (1979). Prediction of preschool social behavior from social and emotional development at one year. Child Psychiatry and Human Development, 145-151.

Lay-Dopyera, M., & Dopyera, J. E. (1987). Strategies for teaching. In C. Seefeldt (Ed.), The early childhood curriculum: A review of current research. New York City: Teachers College, Columbia University.

Lazar, I., & Darlington, R. (1982). Lasting effects of early education: A report from the consortium for longitudinal studies. Monographs of the Society for Research in Child Development, Serial No. 195, 47, #2-3.

Levenstein, P., O'Hara, J., & Madden, J. (1983). The Mother-Child Home Program of the Verbal Interaction Project. In Consortium for Longitudinal Studies, As the twig is bent....lasting effects of preschool programs (pp. 237-264). Hillsdale, NJ: Lawrence Erlbaum Associates.

Marx, R., & Seligson, M. (1988). Public school early childhood study: The state survey. New York City: Bank Street College of Education.

McKey, R. H., Condelli, L., Ganson, H., Barrett, B., McConkey, C., & Plantz, M. (1985). The impact of Head Start on children, families and communities. Executive Summary. Final Report of the Head Start Evaluation, Synthesis and Utilization Project. Prepared for the Head Start Bureau Administration for Children, Youth and Families, Office of Human Development Services, Washington D. C. Contract no. 105-81-C-026.

Miller, L. B., & Bizzell, R. P. (1983). Long-term effects of four preschool programs: Sixth, seventh and eighth grades. Child Development, 54, 727-741.

Mitchell, A. (1988a). Public school early childhood study: The case studies. New York City: Bank Street College of Education.

Mitchell, A. (1988b). Public school early childhood study: The district survey. New York City: Bank Street College of Education.

Mitchell, A., & Seligson, M. (1986). Early childhood education and the public schools. ED 278 497.

National Association for the Education of Young Children. (1986, September). Position statement on developmentally appropriate practice in early childhood programs serving children from birth through age 8. Young Children, pp. 4-19.

Nichols, C. (1986). Training new parents to be teachers in rural Missouri. Principal, 19-20.

Nieman, R. H., & Gastright, J. F. (1981). The long-term effects of ESEA Title I preschool and all-day kindergarten: An eight-year follow-up study. Cincinnati, OH: Bureau of Elementary and Secondary Education, Cincinnati Public Schools. Paper presented at the American Educational Research Association, Los Angeles.

Palmer, F. H., Semlear, F., & Fisher, M. (1983). One-to-One Harlem Study. 147-161. In M. J. Begab, H. C. Haywood, & M. L. Garber (Eds.), Psychosocial influences in retarded performance: Vol. II. Strategies for improving competencies (pp. 147-161). Baltimore, MD: University Park Press.

Pendleton, A. (1986). Preschool enrollment: Trends and implications. The Condition of Education. Washington, DC: Center for Education Statistics, pp. 125-136.

Pierson, D. E., Bronson, M. B., Dromey, E., Swartz, J., Tivnan, T., & Walker, D. K. (1983). The impact of early education: Measured by classroom observations and teacher ratings of children in kindergarten. Evaluation Review, 7(2) 191-216.

Pierson, D. E., Walker, D. K., & Tivnan, T. (1984). A school-based program from infancy to kindergarten for children and their parents. The Personnel and Guidance Journal, 448-455.

Price, R. H. (1987). What do successful prevention programs have in common? Testimony given to the House Select Committee, Children, Youth and Families, House of Representatives, U.S. Congress, April 28.

Phyfe-Perkins, E. (1981). Effects of teacher behavior on preschool children: A review of the research. Washington, DC: ERIC Document Reproduction Service No. ED 211 176.

Ramey, C. T., & Campbell, F. A. (1984). Preventive education for at-risk children: Cognitive consequences of the Carolina Abecedarian Project. American Journal of Mental Deficiency, 88(5), 515-523.

Ramey, C. T., & Haskins, R. (1981). The causes and treatment of school failure: Insights from the Carolina Abecedarian Project. In M. J. Begab, H. C. Haywood, & H. L. Garber (Eds.), Psychosocial influences in retarded performances: Vol. II. Strategies for improving competence (pp. 89-112). Baltimore, MD: University Park Press.

Rich, Spencer. (1987, November 10). Preschool care linked to drop in delinquency. The Washington Post.

Royce, J. M., Darlington, R. B., and Murray, H. W. (1983). Pooled analyses: Findings across studies. In Consortium for Longitudinal Studies, As the twig is bent....lasting effects of preschool programs (Chapter 13, pp. 411-439). Hillsdale, NJ: Lawrence Erlbaum Associates.

Ruopp, R., Travers, J., Glantz, F., and Coelen, C. (1979). Children at the center: Summary findings and their implications (Vol. I). Final report of the National Day Care Study. Cambridge, MA: Abt Associates.

Schweinhart, L. J. (1985). Early childhood development programs in the eighties: The national picture. High/Scope Early Childhood Policy Papers, No. 1. Ypsilanti, MI: High/Scope Educational Research Foundation.

Schweinhart, L. J., & Koshel, J. J. (1986). Policy options for preschool programs. High/Scope Early Childhood Policy Papers, No. 5. Ypsilanti, MI: High/Scope Educational Research Foundation. ED 276 515.

Schweinhart, L. J., Koshel, J. J., & Bridgman, A. (1987, March). Policy options for preschool programs. Phi Delta Kappan, 524-528.

Schweinhart, L. J., & Weikart, D. P. (1980). Young children grow up: The effects of Perry Preschool Program on youths through age 15 (Monographs of the High/Scope Educational Research Foundation, 7). Ypsilanti, MI: High/Scope Press.

Schweinhart, L. J., Weikart, D. P. (1981). Perry Preschool effects nine years later: What do they mean? In M. J. Begab, H. C. Haywood, & H. L. Garber (Eds.), Psychosocial influences in retarded performances: Vol. II. Strategies for improving competence (pp. 89-112). Baltimore, MD: University Park Press.

Schweinhart, L. J., Weikart, D. P., & Larner, M. B. (1986). Consequences of three preschool curriculum models through age 15. Ypsilanti, MI: High/Scope Educational Research Foundation.

Seefeldt, C. (1973, Winter). Who should teach children? The Journal of Teacher Education, 24(4), 308-311.

Seitz, V., Apfel, N. H., Rosenbaum, L. K., & Zigler, E. (1983). Long-term effects of projects Head Start and Follow Through: The New Haven Project. In Consortium for Longitudinal Studies, As the twig is bent ....lasting effects of preschool programs (Chapter 10, pp. 299-331). Hillsdale, NJ: Lawrence Erlbaum Associates.

Shure, M. B., & Spivack, G. (1982). Interpersonal problem-solving in young children: A cognitive approach to prevention. American Journal of Community Psychology, 10(3), 341-356.

Slaughter, D. T. (1982, March). What is the future of Head Start? Young Children, pp. 3-9.

Smothergill, N. L., Olson, F., & Moore, S. G. (1971). The effects of manipulation of teacher communication style in the preschool. Child Development, 42, 1229-1239.

Take a giant step: An equal start in education for all New York City four-year-olds. (1986). Report of the New York Early Childhood Education Commission.

U.S. Department of Commerce, Bureau of the Census. (1986). Statistical abstract of the United States, 1987. Washington, DC: Government Printing Office.

Weikart, D. P. (1981). Effects of different curricula in early childhood intervention. Educational Evaluation and Policy Analysis, 3(6), 25-35.

Weikart, D. P., Epstein, A. S., Schweinhart, L. J., & Bond, J. T. (1978). The Ypsilanti preschool curriculum demonstration project. (Monographs of the High/Scope Educational Research Foundation, No. 4). Ypsilanti, MI: High/Scope Press.

Weissberg, R. P., Gesten, E. L., Rapkin, B. D., Cowen, E. L., Davidson, E., Flores de Apodaca, R., & McKim, B. J. (1981). The evaluation of a social problem solving program for suburban and inner-city third grade children. Journal of Consulting and Clinical Psychology, 49, 251-261.

White, B. L., & Watts, J. C. (1978). Experience and environment: Major influences on the development of the young child (Vol. I). Englewood Cliffs, NJ: Prentice-Hall.

Zigler, E. F., & Berman, W. (1983, August). Discerning the future of early childhood intervention. American Psychologist, 894-906.

Table 1

Enrollment of 3- and 4-Year-Old Children
in Pre-primary Programs (Numbers in Thousands)
(Adapted from Digest of Education Statistics, 1988, p. 55)

	TOTAL POPULATION			3-YEAR-OLDS			4-YEAR-OLDS		
Year	Total Population	Total # in Pre-school	% of Total in Pre-school	Total Population	# in Pre-school	% in Pre-school	Total Population	# in Pre-school	% in Pre-school
1965	12,549	3,607	27.1	4,149	203	4.9	4,238	683	16.1
1970	10,940	3,106	35.5	3,516	454	12.9	3,620	1,007	27.8
1975	10,185	4.955	48.7	3,177	683	21.5	3,699	1,418	40.5
1976	9,727	4,790	49.2	3,019	602	19.9	3,220	1,346	41.8
1977	9,249	4,577	49.5	2,978	645	21.7	3,061	1,290	42.1
1978	9,111	4,584	50.3	3,023	759	25.1	3,028	1,313	43.4
1979	9,119	4,664	51.1	3,025	746	24.7	3,070	1,393	45.4
1980	9,286	4,878	52.5	3,143	857	27.3	3,072	1,423	46.3
1981	9,421	4,937	52.4	3,266	891	27.3	2,985	1,442	48.3
1982	9,873	5,105	51.7	3,387	928	27.4	3,271	1,496	45.7
1983	10,254	5,384	52.5	3,574	1,004	28.1	3,414	1,619	47.4
1984	10,612	5,480	51.6	3,609	1,004	27.8	3,579	1,603	44.8
1985	10,733	5,865	54.6	3,594	1,035	28.8	3,598	1,766	49.1
1986	10,866	5,965	54.9	3,604	1,042	28.9	3,616	1,771	49.0

Table 2

Labor Force Participation Rate of Married, Separated and Divorced Women by Presence and Age of Children: 1965-1987
(Adapted from Table No. 624, Statistical Abstracts of the U.S., 1988, 108th Edition)

	TOTAL			NO CHILDREN UNDER 18			CHILDREN 6-17 ONLY			CHILDREN UNDER 6		
Year	Married	Separated	Divorced	Married	Separated	Divorced	Married	Separated	Divorced	Married	Separated	Divorced
1960	30.5	NA	NA	34.7	NA	NA	39.0	NA	NA	18.6	NA	NA
1970	40.8	52.1	71.5	42.2	52.3	67.7	49.2	60.6	82.4	30.3	45.4	63.3
1980	50.1	59.4	74.5	46.0	58.9	71.4	61.7	66.3	82.3	45.1	52.2	68.3
1982	51.2	60.0	74.9	46.2	57.5	71.6	63.2	68.4	83.6	48.7	55.2	67.2
1983	51.8	58.7	74.6	46.6	55.6	71.7	63.8	68.7	82.2	49.9	53.8	68.7
1984	52.8	60.9	74.3	47.2	59.1	70.5	65.4	70.1	84.1	51.8	53.9	67.7
1985	54.2	61.3	75.0	48.2	60.0	72.1	67.8	70.9	83.4	53.6	53.2	67.5
1986	54.6	62.2	76.0	48.2	60.4	72.1	68.4	70.6	84.7	53.8	57.4	73.8
1987	55.8	61.4	75.5	48.4	57.9	71.9	70.6	72.6	84.5	56.8	55.1	70.5

Table 3

Percent of 3- and 4-Year-Olds Enrolled in Preschool by Family Income and Age: 1986
(Source: Bureau of Census, Current Population Survey)

Family Income	Age 3	Age 4
Total	28.9	49.0
Under $5,000	15.3	23.5
$ 5,000-$ 9,999	13.4	29.5
$ 10,000-$14,999	16.8	25.6
$ 15,000-$19,999	20.6	32.1
$ 20,000-$24,999	23.0	32.2
$ 25,000-$34,999	30.1	45.9
$ 35,000 +	49.0	57.7
Income not Reported	39.1	28.1

Table 4

Percent of 3- and 4-Year-Olds Enrolled in Preschool by Labor Force Status of Mother: 1986
(Source: Bureau of Census, Current Population Survey)

Labor Force Status of Mother	Age 3	Age 4
Total	28.9	49.0
Employed		
- Full time	37.2	42.6
- Part time	31.3	45.5
Unemployed	17.7	30.9
Not in Labor Force	21.2	34.3

Table 5

Percent of 3- and 4-Year-Olds Enrolled in Preschool by Education of Household Head: 1986
(Source: Bureau of Census, Current Population Survey)

Education of Household Head	ENROLLMENT RATE	
	3-Year-Olds	4-Year-Olds
Total	28.9	49.0
None to Elem. 8	13.9	31.0
1-3 yrs High sch.	14.0	39.7
4 yrs High school	26.9	42.9
1-3 yrs College	31.5	56.7
4 + yrs College	46.2	68.1

Table 6

Key Features of Nine Studies
(Adapted from Berrueta-Clement et al., 1984, pp. 96-99)

STUDY	YEAR STUDY BEGAN	LOCATION	AGE OF ENTRY	YEARS OF PROGRAM DURATION	PROGRAM FOR CHILDREN	FOLLOW-UP SAMPLE SIZE OF EXPERIMENTAL GROUP	STUDY DESIGN	AGE OF CHILD AT LAST REPORT
Perry Preschool (1984)	1962	Ypsilanti, MI	3 or 4	1 or 2	part-time	123	experimental	19
New York Pre-K (1982)	1975	NY State	4	1	part-time	2058	quasi	9
Harlem Head Start (1983)	1966	NY City	2 or 3	1	part-time	315	experimental	13
BEEP (1983)	1972 - Present	Brookline, MA	from birth	5	weekly play group; daily Pre-K/year	132	quasi	5 - 6
Mother-Child-Home (1983)	1965	Long Island, NY	2 or 3	2	bi-weekly home visits	250	quasi	9 - 13
Milwaukee (1983)	1968	Milwaukee, WI	3 to 6 months	6	full-time year round	40	experimental	10
Consortium for Longitudinal Studies (1982)	1960s	FL, IL, KY, NH, NJ, NY, PH	3 or 4	1 to 5	varied	2008	varied	9 - 19
Carolina Abecedarian (1984)	1972 - Present	NC	3 to 12 months	no data	full-time year round	112	experimental	6
ESEA Title I all day pre-K (1981)	1970	Cincinnati, OH	no data	2	full-time year round	410	no data	9 - 13
Philadelphia Study (1983)	1963	Philadelphia PA	4	2	all day K 4 days/week	130	quasi	17 - 19

Table 7

Findings for Scholastic Placement
(Adapted from Berrueta-Clement, 1984, p. 102)

STUDY	PLACEMENT	PROGRAM GROUP	CONTROL GROUP
ESEA Title I Pre-K (age 13)	Special Ed.	5%	11%
	Retention	9%	12%
Early Training (age 18)	Special Ed.	3%	29%
	Retention	53%	69%
Perry Preschool (age 19)	Special Ed.	37%	50%
	Retention	35%	40%
Harlem Head Start (age 13)	Special Ed.	No data	No data
	Retention	24%	45%
New York Pre-K (age 9)	Special Ed.	2%	5%
	Retention	16%	21%
Mother-Child-Home (age 9)	Special Ed.	14%	39%
	Retention	13%	19%
Curriculum Comparison Group (age 19)	Special Ed.	38%	63%
	Retention	26%	56%